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A DESCRIPTION OF THE EGG CASE AND LARVA
OF THE WATER SCAVENGER BEETLE,
HELOBATA STRIATA
(COLEOPTERA: HYDROPHILIDAE)¹

BY PAUL J. SPANGLER AND JARRETT L. CROSS²
Smithsonian Institution, Washington, D.C. 20560

The larvae of only a few genera of the aquatic hydrophilids of the United States remain undescribed. One of these genera is *Helobata*, a monotypic tropical genus whose range reportedly extends from Buenos Aires, Argentina, north through the West Indies, Central America, Mexico, and along the Gulf Coast to Louisiana and Florida in the United States. *Helobata striata* Brullé, is presently recognized as the only species in the genus.

Females of *Helobata*, like those of *Helochares*, *Epimetopus*, and *Spercheus*, carry their egg cases beneath the abdomen. The anterolateral corners of the egg cases of *H. striata* (Fig. 1) are attached to the upper surfaces of the hind femora, at the apices, by a narrow matted group of silklike fibers.

Because *Helobata* females carry their egg cases beneath their abdomens, larvae may be obtained simply by confining an egg-carrying female until the eggs hatch. The larva described (Fig. 2) below was obtained in this manner. Two egg-carrying females were collected 15 miles west of Pijije, Department of Jutiapa, Guatemala, on 5 August 1965 by P. J. Spangler. Thirty larvae hatched from one egg case several days after the female was collected but the total length of time required for the eggs to develop is unknown. Because the eggs hatched while in transit, the larvae could not be

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² Smithsonian Institution Visiting Research Student.

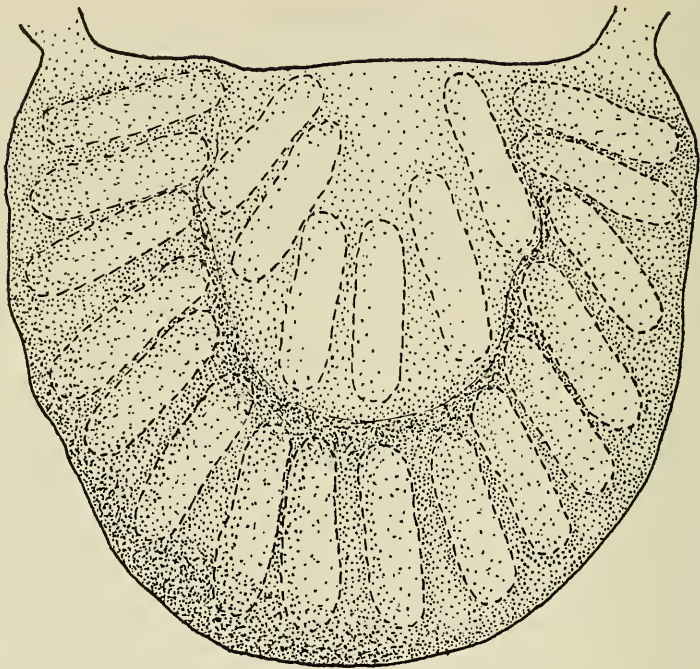


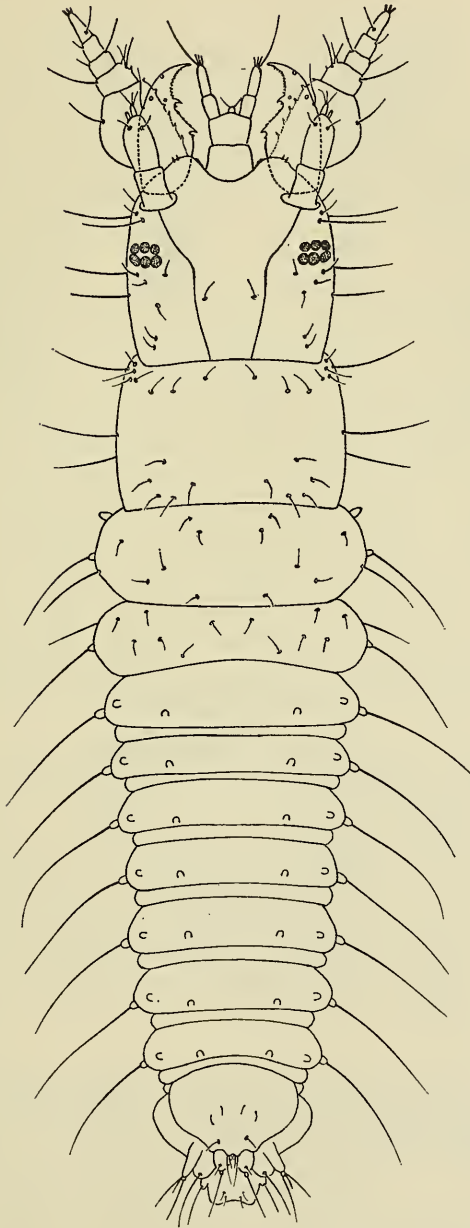
FIG. 1. *Helobata striata* Brullé, egg case, dorsal view.

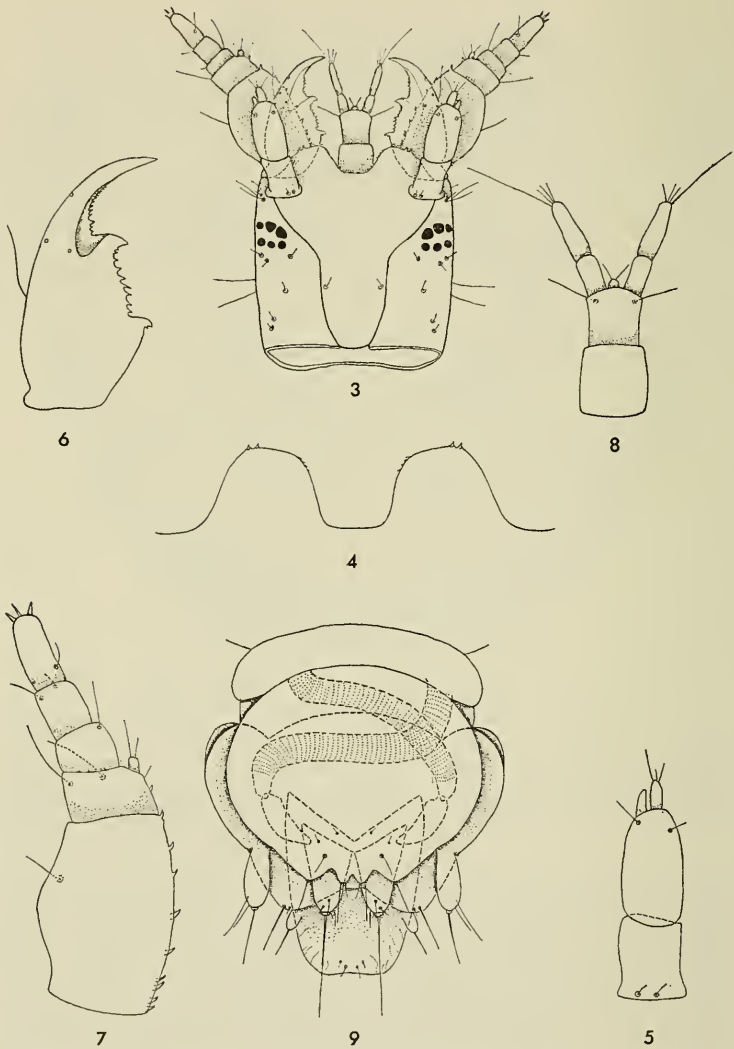
easily reared and they were preserved. The second female and her egg case containing 35 eggs also were preserved for descriptive purposes.

Egg case and eggs: Length of egg case, 2.0 mm through midline, width, 2.8 mm; loosely constructed of silklike fibers; dorsal surface clean, transparent and shining where it lies against the abdominal sterna; fibers of ventral surface and hind margin mostly opaque, coated with debris. Eggs deposited horizontally, oriented posteriorly in a semicircular fashion, with a full layer of eggs on bottom and two successively shorter layers above at posterior end resulting in a tapered saclike egg case, thick posteriorly and thin anteriorly. Egg creamy yellow, 0.75 mm long, 0.25 mm wide.

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FIG. 2. *Helobata striata* Brullé, first-instar larva, habitus.





FIGS. 3-9. *Helobata striata* Brullé, first-instar larva: 3, head; 4, labroclypeus; 5, antenna; 6, mandible; 7, maxilla; 8, labium; 9, stigmatic atrium.

First instar larva: Total length 1.4 mm; width of prothoracic segment 0.32 mm.

Color, creamy yellow; sclerites slightly darker yellow; ocelli black.

Head (Fig. 3), almost as wide as long, 0.26 mm wide; 0.28 mm from anterior extremity of labroclypeus to occipital foramen. Frontoclypeal suture absent. Stem of ecdysial cleavage line absent; frontal branches present delimiting a broadly U-shaped frons with a distinct constriction immediately posteriad to the ocelli. Frons glabrous except 2 short setae behind constriction. Remainder of head capsule sparsely setose as illustrated (Fig. 3).

Labroclypeus (Fig. 4) symmetrical with deep medial emargination; 2 stout teeth on outer margin and 4 fine teeth on inner margin of well-developed anterolateral projections of epistoma.

Ocular area with 2 curved rows of 3 ocelli forming an ellipse. Inner 2 ocelli of anterior row large, irregular in shape, and almost fused.

Antenna robust (Fig. 5), 3 segmented, slightly longer than stipes. First antennal segment shorter than penultimate antennal segment and bearing 2 small, dorsobasal setae. Penultimate antennal segment bearing 2 dorsal preapical setae and 1 stout apical sensory peg. Ultimate antennal segment small, subcylindrical, terminating in 3 apical setae.

Mandibles symmetrical, prominent, stout, sharply pointed apically (Figs. 2, 3, 6). Inner margin of mandible (Fig. 6) with 3 large teeth; 13 small teeth forming a serrate edge between apical tooth and medial tooth; 9 small teeth forming a serrate edge between medial tooth and basal tooth, and 1 small tooth projecting from posterior margin of basal tooth. Outer edge of mandible with 1 long seta slightly behind mid-length.

Maxilla (Fig. 7) with central axis of palpus and palpifer directed laterally at a distinctly obtuse angle to the central axis of the stipes. Stipes swollen, nearly bulbous in appearance, and bearing a row of spines on its inner margin, and 1 ventrolateral seta. Palpifer with 1 spine near midlength on inner margin; 1 seta distad to spine on inner margin; 2 long ventral setae on distal margin; and a sensory lobe at anteromedial angle bearing 2 apical setae. Basal segment of palpus bearing 1 seta at anteromedial angle. Penultimate segment bearing 2 ventral setae near distal margin. Ultimate segment longer than penultimate; bearing 1 dorsal seta at inner posteromedial angle and 3 stout apical setae.

Labium (Fig. 8) not extending as far forward as palpifer. Ultimate segment of palpus one and a half times as long as penultimate and bearing 4 apical setae. Ligula distinct but small, less than one-half as long as segment one of labial palpus and bearing 2 apical setae. Prementum bearing 2 ventral setae arising near base of ligula.

Prothorax broader than long, slightly wider posteriorly; anterolateral corners each with 4 short setae and 1 long seta; remainder of dorsal

surface sparsely setose as illustrated (Fig. 2). Mesothorax wider than prothorax but only three-fourths as long; lateral margin with a prominent spiracular tubercle and a seta-bearing lobe; dorsal surface sparsely setose. Metathorax slightly wider than mesothorax and half as long; lateral margin with a seta-bearing lobe; dorsal surface sparsely setose.

Abdomen with 8 distinct pubescent segments; ninth and tenth segments reduced. All segments separated by intersegmental folds. Lateral margins of segments 1-7 each with a seta-bearing lobe and 2 bare dorsolateral tubercles. Eighth tergum represented by suboval superior valve of stigmatic atrium, a large sclerite with 4 lobes on caudal margin as illustrated (Fig. 9). Ninth tergum trilobed. Middle lobe subquadrangular with 4 short setae near middle of caudal margin; margins apparently wrinkled; lateral margins each with 1 papilliform projection bearing a single apical seta. Lateral lobes less distinct, with 1 short seta and 1 long seta at each posterolateral angle. Mesocercus prominent, conical; bearing 1 long terminal seta and 4 shorter setae near apex, 2 dorsal and 2 medial. Paracercus prominent, subcylindrical, wider at apex than at base; bearing 3 setae near apex, 1 apical and 2 lateral.

The larva of *Helobata* runs to the second alternative in couplet 6 in Chandler's key (1956, pp. 339-341) but does not fit all of the characters given there. The following couplets substituted for Chandler's couplets 6 and 7 will separate *Helobata* from the other genera in Chandler's key.

1. Epicranial suture (stem of ecdysial cleavage line) absent, frontal sutures parallel; left expansion of epistoma much more prominent than the right expansion; ligula absent *Laccobius* Erichson
Epicranial suture (stem of ecdysial cleavage line) present or not; frontal sutures not parallel: lateral expansions of epistoma similar and usually in line with anterior margin of labroclypeus; ligula present 2
2. Ligula shorter than segment 1 of labial palpus ... *Helobata* Bergroth
Ligula longer than segment 1 of labial palpus 3
3. Antennae short; epicranial suture absent; legs reduced
..... [to couplet 8 in Chandler's key]
Antennae longer; epicranial suture present but usually short; legs fairly long, not reduced [to couplet 9 in Chandler's key]

LITERATURE CITED

- CHANDLER, H. B. 1956. Aquatic Coleoptera. In Usinger, Aquatic Insects of California with keys to North American Genera and California Species. Berkeley and Los Angeles, ix + 508 pp.